

**CLAIMS**

1. A device for determining vibration characteristics of vibrated, supported, generally round, substantially ellipsoid articles, such as eggs, comprising:
- an elastic hammer with handle and head, for tapping and thereby acoustically vibrating such article,
  - 5 - a handle driving element for reciprocating the hammer generally in a plane around an axis in the handle,
  - a microphone arranged immediately adjacent to and directed to the article, for picking up acoustic vibrations generated by the article, and
  - a signal processing means for processing the signals picked up by the
  - 10 microphone for determining vibration characteristics of the article, characterized in that
- the handle adjacent the axis consists of an arm portion to be driven which is connected, through a hinge element, with a handle end having at the extremity thereof a mount having therein a ball as a head, while at least the
- 15 hinge element and the handle end form a hammer rod in one piece.
2. A device according to claim 1, characterized in that the plane passes through the long axis of the article.
- 20 3. A device according to claim 1 or 2, characterized in that at least a single microphone is arranged in said plane, or through the long axis in a second plane substantially perpendicular to said plane.
- 25 4. A device according to any one of the preceding claims, characterized in that the hammer rod and the arm portion form a whole, with the hammer rod forming a leaf spring portion having a spring constant  $k$  in the range between 1.2 and 1.6 N/m.

5. A device according to any one of the preceding claims, characterized in that the handle driving element further comprises a holder with pin hole for a pin perpendicular to the first plane and through the arm portion, with an  
5 electromagnet attached to the holder for reciprocating the hammer generally in said plane, with a magnet included in the arm portion adjacent the electromagnet, and with a stop element for the arm portion during the forward movement.
- 10 6. A device according to claim 5, characterized in that the handle driving element further comprises a stop for interrupting the backward movement of the hammer.
- 15 7. A device according to claim 5 or 6, characterized in that the ball is made of steel, and that the handle driving elements further comprises a holding element with which the hammer is held after a backward movement, the holding element consisting of a stop block for the leaf spring portion and a holding magnet for the ball.
- 20 8. A device according to claim 1, characterized in that the hammer rod is further coupled by means of a bistable switch with the arm portion, the switch having a first and a second snap position, and the hammer rod being movable either to the first snap position or to the second snap position.
- 25 9. A device according to claim 8, characterized in that the hammer rod in the forward movement is switched to the first snap position, and in the backward movement to the second snap position.

**10. A method for determining vibration characteristics of vibrated articles such as eggs, characterized in that tapping of the articles is carried out with a device according to any one of the preceding claims.**

5 **11. A method according to claim 10, characterized in that tapping consists of a single momentary tapping pulse.**

**12. A method according to claim 10 or 11, characterized in that the method is applied in a sorting device for eggs.**

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**13. A method according to claim 10, 11 or 12, characterized in that the eggs are tapped at least twice.**

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